

TECHNICAL REVIEW DOCUMENT
For
Significant Permit Modification to
OPERATING PERMIT 96OPWE125
to be issued to:

Quanex Corporation
Nichols Aluminum - Golden
Weld County
Source ID 1230089

Prepared by Cathy Rhodes
November, 2002

I. PURPOSE:

This document will establish the basis for decisions made regarding the applicable requirements, emissions factors, monitoring plan and compliance status of emission units covered by the operating permit proposed for this site. It is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. This narrative is intended only as an adjunct for the reviewer and has no legal standing. The conclusions made in this report are based on information provided in the original application submittal of October 29, 2002 and subsequent additional information submittals.

Any revisions made to the underlying construction permits associated with this facility in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

II. SOURCE DESCRIPTION:

This source is classified as an aluminum sheet manufacturing facility which falls into the Standard Industrial Classification 3353. Nichols Aluminum manufactures coiled aluminum sheet from aluminum scrap. The facility is located in the city of Ft. Lupton in Weld County within an area designated as attainment for all criteria pollutants. This facility is within 100 km of one Class I area, Rocky Mountain National Park. There are no states within 50 miles.

According to information supplied by the applicant, the facility is not subject to 112(r) the Accidental Release Prevention Program.

III. Project Description

The permittee has applied to accept HAP emission limits in order to be classified as a synthetic minor source for facility-wide HAP emissions. This will be achieved by installing a new lime-injected baghouse to control hydrogen chloride (HCl) and PM emissions from the previously uncontrolled delacquering kiln exhaust. This will make the facility exempt from the Maximum Achievable Control Technology (MACT) requirements for Metal Surface Coating (compliance date is June 10, 2005), and partially exempt from the MACT requirements for Secondary Aluminum Production facilities (compliance date is March 24, 2003). Area sources must still meet the dioxin/furan requirements of the Secondary Aluminum Production MACT. In addition, other changes to the permit are requested.

Application is made to modify the Operating Permit as follows:

Unit S001 - Three Modified Miller Shredders and Fisher-Klosterman Cyclones XQ240, Design Rated at 3 TPH each, Baghouse Controlled.

Previous emission limits assumed no fugitive emission loss from this activity. The permittee estimates 30% fugitive loss from this process. The loss occurs inside the building, and not discharging to the atmosphere. A fugitive emission control efficiency of 70% is assumed for the building (based on the Air & Waste Management Association's Air Pollution Engineering Manual, Coal Processing). Accounting for fugitive emission loss increases the PM emission limit.

Unit S002 - Custom Apros Delacquering Kiln, 14 MMBtu Natural Gas Fired Burner, Design Rated at 10 TPH, SN: BIN221, Controlled by a Thermal Oxidizer and Lime-Injected Baghouse.

A new lime-injected baghouse will be installed to control HCl and PM emissions.

Unit S005 - Gillespie/Powers Melter # 3 Main Hearth, 26 MMBtu Natural Gas Fired Burner, Design Rated at 7.5 TPH, SN: 0286.

The current VOC emission limit is based on stack test results when the melter operated with a combined sidewall and main hearth exhaust. Current operations separate these two exhaust streams. Emissions are revised based on stack test results for Melters #1 and 2, which have always operated with separate exhausts. This results in a reduction in estimated VOC emissions.

Unit S006 - Melt Area Baghouse for Sidewall Melting, Degassing and Filtration, Design Rated at 15 TPH.

The permittee has assessed the capture efficiency of the canopy hoods for this activity, and has determined that the capture efficiency is 98%, instead of the 100% used previously to estimate emissions. The PM emission factor and limit is increased to reflect this new information.

Unit S009 - Two Custom Secowarwick Anneal Ovens, Two U-Tube 17.5 MMBtu Natural Gas Fired Burners, Design Rated at 78 TPH each.

A correction to the annealing furnace emission limits is requested. Current limits are incorrectly based on 8,400 hours of operation. The maximum operating schedule is 8,760 hours/year.

Unit S010 - Davy-McKee Cold Rolling Mill 2-STD, Design Rated at 35 TPH, Controlled with a Air Purifier Centrifugal Separator.

Application is made to increase the Cold Mill maximum production level from 108,000 to 124,000 tons/year. This change results in an increase in VOC and PM emissions.

Unit S011 - Custom Hunter Coil Coating, 26.1 MMBtu Grace Tec Natural Gas Fired Burner, Controlled with a Thermal Oxidizer.

Application is made to increase the coil coating line speed from 400 to 600 feet per minute, by making physical modifications to the line. In addition, the permittee is requesting an increase in the VOC emission limit for this unit. Current limits are based on a thermal oxidizer efficiency of 99.7%. The new requested limit is based on 99.0% (still higher than the NSPS requirement of 90%). This change results in an increase in VOC and HAP emissions.

The unit is already subject to the New Source Performance Standards for Metal Coil Surface Coating.

Unit S012 - MFS - 68 Dross Cooler, Design Rated at 3.75 TPH, Baghouse Controlled.

The permittee has discontinued use of this unit and rendered it inoperable. The unit is therefore removed from the Operating Permit.

The Division has made other Administrative Amendments to the permit, to reflect current Division regulations and policies. See Appendix F of the permit for a list of these revisions.

IV. Summary of Emissions

The requested modifications will result in changes in emission limits as indicated in the table below.

Pollutant	PTE After Modification (TPY)	Previously Permitted Emissions (TPY)	Emission Change (TPY)
VOC			
S005 – Melter #3	2.47	7.68	-5.21
S009 – Anealing Ovens	4.21	4.03	+0.18
S010 – Cold Rolling Mill	67.38	59.29	+8.09
S011 – Coil Coating Line	14.00	8.40	+5.60
Total VOC Change:			+8.66
PM/ PM ₁₀			

S001 - Shredders	9.80	4.28	+5.52
S002 – Delacquering Kiln	3.45	13.67	-10.22
S006 – Melt Area Baghouse	11.90	10.60	+1.30
S009 – Anealing Ovens	1.38	1.32	+0.06
S010 – Cold Rolling Mill	9.15	8.06	+1.09
S012 – Dross Cooler	0.00	1.30	-1.30
Total PM/PM₁₀ Change:			-3.55
NO _x			
S009 – Anealing Ovens	4.22	4.04	+0.18
CO			
S009 – Anealing Ovens	3.40	3.54	+0.14

Total facility potential emissions after the changes will be as follows:

<u>Pollutant</u>	<u>Potential to Emit (tpy)</u>
PM/PM ₁₀	76.8
NO _x	63.4
VOC	97.1
CO	49.3
Each Individual HAP	<10
Total Facility HAPs	<25

Potential emissions are based on requested permit limits within the application, plus emissions from insignificant activities.

Emissions are below Operating Permit major source levels, however, the Secondary Aluminum Production MACT requires area sources to meet dioxin/furan emission minimization requirements, and an Operating Permit is required for area sources. (The existing Operating Permit was issued because potential HAP emissions were above major source levels.)

In addition, the source is still a synthetic minor source (any single criteria emissions <100 tons/year (secondary aluminum production is a “listed source” under the definition of “major stationary source”)) for Prevention of Significant Deterioration (PSD) purposes.

V. Emission Factor Sources

See original Technical Review Document for sources of emission factors that have not changed. Sources for emission factors that are changed in this revisions are as follows. S001 – Shredders: Fugitive dust control from AWMA Air Pollution Engineering Manual, Coal Processing Section, Table 4.

S005 – Melter #3: Source tests for Melters #1 and #2.

S006 – Melt Area Baghouse: AP-42 factors for Chlorine Demagging, Section 12.8.3. Fugitive dust control from AWMA Air Pollution Engineering Manual, Coal Processing Section, Table 4.

HAPs:

S001 – Shredder: Based on stack test results.

S002 – Delacquering Kiln: stack test and engineering estimates.

S006 – Melt Area Baghouse: Stack test and engineering estimates.

S011 – Coil Coating: Mass balance based on HAP content of coatings and cleaning solvents.

Fuel Use: AP-42.

VIII. New Proposed Controls & Efficiency

S002 - Delacquering Kiln: New Bagfilter at 99% for PM and 97% for HCl

S011 – Coil Coating: Thermal Oxidizer efficiency reduced to 99.0% for VOC and HAPs

IX. Regulatory Requirements

New applicable requirements added due to this project are as follows:

S002 – Delacquering Kiln: New baghouse testing and monitoring requirements added.

S011 – Coil Coating: Requirements are added to ensure the thermal oxidizer is operated with a control efficiency of 99.0% or greater. This is necessary to ensure the facility wide VOC emissions remain below 100 tons/year, and HAP emissions remain below major source levels.

HAPs: Emission limits, calculation, recordkeeping and periodic monitoring requirements are added.

MACT requirements for Secondary Aluminum production area sources are added. (D/F emission limits, testing, recordkeeping, reporting and monitoring.)

X. Modeling Results

New source impact modeling is not required, since potential PM/PM₁₀ emissions are decreasing. Modeling for ozone impacts is not required under the Division's Modeling Guidance.

XI. Compliance Assurance Monitoring (CAM)

A significant operating permit modification triggers CAM review for "large pollutant specific emissions units" (units with potential to emit, taking into account control equipment, in an amount equal to or greater than major source levels). There are no such units at this facility, therefore this modification does not trigger CAM requirements. CAM will apply at the time of permit renewal, or may apply if the permit is reopened. At this time, no points at this facility are subject to the provisions of the CAM program as set forth in 40 CFR Apart 64 as adopted by reference into Colorado Regulation No. 3, Part C, Section XIV.

XII. Construction Permit Issuance

In order to meet the March 24, 2003 compliance deadline to qualify as an area source for the secondary aluminum production MACT, a construction permit is being issued in tandem with this operating permit. The construction permit applicable requirements are identical to those in the modified operating permit.